INTERNATIONAL BULLETIN OF PLANT PROTECTION

DISCOVERIES AND CURRENT EVENTS *

Algeria : Swarms of Desert Locust, *Schistocerca gregaria* (1).

Small swarms of locusts passed over the Annexe of Gardaïa on 10 June 1929 flying in a S. W.-N. E. direction.

A swarm, alighted on 10 June on the Caïdat of Timimoun, coming from the East has flown away towards the West.

A small swarm has passed over Brézina 85 km. S. S. E. of Géryville, flying towards the N. E., on the 11 June.

A large swarm of locusts travelling towards the N. W. appeared on 15 June, 5 km. east of Aïn-Sefra.

On 15 June locusts passed over the post of Abdela el Bahriat and over Colomb-Béchar, coming from the N. .W and going away towards the S. E.

Some swarms were reported at Tabelballa (Beni Abbès) on 16 June.

A fairly large swarm flying in a N. W. direction appeared on 16 June at Aïn-Sefra ; it flew away towards the S. W. A fairly large swarm flying from the South was seen at Ghouiba 25 km. S. E. of Aïn-Sefra on 16 June ; it was then seen on 17 June in the Moghrar region travelling in a westerly direction.

A small swarm of locusts passed over Béni-Ounif on 18 June and flew away towards the North.

A large swarm of red locusts flew over Géryville on 23 June, coming from the East and travelling towards the west. Hatchings of desert locusts are reported 35 km. W. N. W. of Laghouat and 2 km. S. E. Active control measures are being taken.

Algeria : Moroccan Locust (*Dociostaurus maroccanus*) in the three Departments (1).

Control measures have virtually ended in the three Departments on June 1929.

In the Department of Oran, no swarms of locusts have been reported.

In the Department of Algiers, a few swarms have again appeared in the Communes of Sidi-Aïssa and Aïn Boucif. Considerable laying of eggs have been recorded in these two Communes.

In the Department of Constantine, very dense swarms have continued to invade the Communes of Tocqueville P. E., M'Sila, Maâdid, Rhira, Eulma, Châteaudun-du-Rhumel, Belezma, Aïn-el-Ksar, Barika and Aïn-Touta. Considerable damage was done to cereals which had not yet been harvested, principally at Belezma, Maâdid and Tocqueville.

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* In this, as in the two next chapters, the countries are arranged in French alphabetical order.

(1) Communication from the Governor General of Algeria to the International Institute of Agriculture.

The areas infested by eggs have been carefully marked.

The use of poison baits against the winged insects has given excellent results in several Communes.

Dutch East Indies : Diseases and Pests of Tea in Java (1).

West-Java. — Of the root fungi the red root fungus (*Ganoderma pseudoferreum*) was again in 1928 the worst. On some estates this root disease was very serious. On one estate near Buitenzorg, large 700 bahu, not less than 15 bahu were entirely devastated. Less important were *Rosellinia*, *Rhizoctonia bataticola* and *Fomes lamaoensis*. A few cases were reported of the diseases, caused by the following fungi : *Ustulina* (root collar disease), *Corticium* (thread blight), *Corticium invisum* (black rot), *Corticium salmonicolor* (pink disease), *Marasmius* (horse hair blight).

Helopeltis was in the months May to September, 1928, worse than in other years. The damage, however, was not very important, as a consequence of efficient cultural measures and the appearance of the parasite *Euphorus*.

Mites were of little importance in consequence of the many rains during the dry season.

The larvae of the beetles *Holotrichia*, *Exopholis* and *Euchlora* did damage to the roots and caused serious injury on some estates.

Central Java. — The root fungi *Ganoderma pseudoferreum* and *Rosellinia arcuata* were rather important.

Some cases of damage by the twig-borer *Xyleborus* were reported.

Of the caterpillars those of the Psychid *Clania variegata* must be mentioned.

Iraq : Invasion by the Desert Locust, *Schistocerca gregaria* (2).

The Kingdom of 'Iraq is normally free from any locust pest with the exception of the Northern Area which is part of the normal habitat of the Moroccan Locust (*Dociostaurus maroccanus*).

The Desert Locust (*Schistocerca peregrina* = *Schist. gregaria*) exists however practically all over the country, normally in the solitary stage, and the damage caused by it is normally so slight as to be negligible.

Local agriculturists recall, however, within living memory, at least one large-scale invasion by this migratory locust, when, according to their accounts, enormous damage was done, summer cultivation was completely destroyed and even the date-gardens of the date zone were defoliated.

Popular belief is to the effect that these invasions were from Nejed, hence the local name for this locust ' Neidi '. In February, 1928, enormous swarms of the locust were reported at Gaworah and generally within the Koweit frontier (this locust is the edible locust and proof of its abundance was afforded by the Basrah Bazaar which became flooded with locusts for sale).

It was not possible for the Government of Iraq to take any active measures in Koweit territory. Swarms of hoppers shortly afterwards invaded Iraq territory, however, and stocks of poison bait were sent down and a vigorous campaign undertaken.

Simultaneously, flying swarms of the same species began to arrive and egg-laying commenced. By early March the Muntafiq Liwa was invaded, and in mid-March further flying swarms arrived in the Liwas of Diwaniyah, Ramadi, Baghdad

(1) Communication from the official correspondent to the Institute, Dr. C. J. J. VAN HALL, Baarn.

(2) Communication from the official correspondent to the Institute, Mr. J.F. WEBSTER, B. A., Inspector General of Agriculture, Baghdad, Iraq.

and Diala. Subsequently the more northern Liwas of Kut, Kirkuk, Arbil, Sulaimani and Mosul were all invaded by further swarms, and egg-laying was general throughout the country.

Fortunately the preparations for the annual campaign agaist the Moroccan Locust had been on a generous scale, and personnel, material, and funds were immediately available. Hoppers were tackled, chiefly by the poison bait method, as they hatched and comparatively little damage was done.

As it was the first time the migratory locust had appeared since the formation of an anti-locust organization little was known about it, and great anxiety was felt.

As the season progressed however it become increasingly obvious that the pest was far from happy under the conditions under which it found itself. When adults stopped to feed it was for a short time only, and they were never observed to take full meals but retained their air sacks and were obviously anxious to get North out of the dry hot climate of 'Iraq.

Egg-laying also was very perfunctory. Only in irrigated fields and gardens could the females find ground soft enough to admit of proper deposition of egg-pockets.

The great majority of eggs were laid naked or half buried in grape-like clusters. Many were destroyed by birds and many were completely dried up either as eggs or immediately on hatching.

During June, July and August further swarms arrived, and such hoppers as had escaped destruction reached the flying stage.

All continued to fly in a Northerly direction and by the beginning of September the country was clear of all stages of the pest.

The origin of these enormous swarms is still a mystery though it is under investigation by the various countries which suffered invasion.

The Nejed valley and Southern Arabia have been suggested as the points of origin. Neither are considered to carry enough vegetation to nourish such enormous swarms.

The locusts which arrived in Basrah in February must have been hatched in December or early January and this indicates that some region in the tropics is the true centre of origin.

Reports coming to hand as this note is written indicate that we may expect a recurrence of last year's phenomena this year, but on a lesser scale.

Italy : Two Insects Injurious to Wheat in the Province of Pesaro (1).

Two insects very different from one another, but whose effects are similar, namely the beetle *Calamobius filum* Rossi (' mozzaspighe ') and the wheat-stem sawfly (' cefo pigmeo ', *Cephus pygmaeus* L.), have this year caused more or less serious damage just at the time of reaping in wheat fields in almost all the communal territories of the Province of Pesaro.

To quote an example, in a plot of about 3 hectares at a short distance from Fano three-fifths of the crop were lost on account of *C. filum*.

The injuries of the *C. pygmaeus* were recorded everywhere, but especially on many farms near Urbania. Everywhere isolated centres of *C. filum* or *C. pygmaeus* were seen, and also fields of wheat in which the two insects were found together mixed up, rendering the damages greater.

As regards the control of these pests, where it is possible, the destruction of

(1) Communication from the Royal Phytopathological Observatory at Fano, transmitted by the Royal Station of Plant Pathology at Rome, official correspondent of the Institute.

the stubble by means of fire is indicated. Where it is difficult to adopt this practice it is advisable :— (*a*) to cut, collect and remove the stubble from the field ; (*b*) to har row the ground ; (*c*) to rake up and burn the roots.

Turkey: Crop Pests (1).

Dociostaurus maroccanus and *Calliptamus italicus.*

As mentioned in previous reports there have been outbreaks of the above locusts in different parts of Turkey, and regular struggles have been made by means of poisons and zinc screens.

The eggs laid by the first locust in the southern vilayets, situated on Syrian and Iraq frontiers, hatched from 7th to 25th April. Good and useful rains having fallen this year in this part of the country and the weather having been generally cooler as compared with the past years, the hatching took place a week after the usual time. The locusts became winged on the 13th May.

Schistocerca gregaria.

It is reported that this locust existed this year also in Palestina, Transjordan and Syria, but the swarms have not come to Turkey.

Ephippigera ephippiger.

Made a considerable destruction in the vineyards of Smyrna and its environments.

Ino ampelophaga.

Made damages in the vineyards of Smyrna and Constantinople. The fighting against this insect was made by the application to the lower parts of the buds of a mixture composed of tarmac and olive oil, which prevents the caterpillars climbing up to the buds.

Polychrosis botrana.

Is still making destruction in the vineyards of Smyrna and Constantinople.

Eurygaster integriceps.

As mentioned in previous reports this insect has caused great damages to the wheat crops of the vilayets of Adana and Aintap. The barley crop was, however, saved.

The insect has also been noticed in some other parts of Turkey, especially in Samsun, Dardanelles and Brousa, but in all these places *Eur. integriceps* has not attacked the wheat crop in swarms, which case is considered very important.

It has also been noticed that two different natural enemies existed for the destruction of the eggs and the adults of *Eurygaster.* Studies are being made regarding the biology of *Eurygaster* and their respective enemies.

VARIOUS QUESTIONS

Data and Information on Damage caused to Cultivated Crops by the Cold of the Winter 1928-1929. *

Cirenaica (2). — The absolute minimum temperatures registered in various parts of Cirenaica during the winter of 1928-29 (Bengasi, 3.6; Barce, 1.0; Derna,

* Continued from No. 8.

(1) Communication from the official correspondent to the Institute, M. Sureya, Member of the Council of State, Angora, Turkey.

(2) Communication from the official correpondent to the Institute, Dr. G. Piani, Director of the R. Ufficio per i Servizi Agrari della Cirenaica at Bengasi.

5.2 ; Tobruk, 1.3) are not exceptional, since in previous years the thermometer has repeatedly gone down below zero in various zones of the high plateau.

On the other hand the considerable length of the winter period, which retarded the growth of young plants and rendered them less capable of resisting the action of hot spring winds, was prejudicial to cereals and especially to barley.

Otherwise there was no other damage to complain of.

Cyprus (1). — The minimum temperatures recorded at the three principal meteorological stations in Cyprus during the winter 1928-29 were :—

Station	Approximate Altitude	December 1928	January 1929	February 1929
Nicosia	536 ft.	38	31	31
Limassol	40 ft.	40	32	34
Acheritou	60 ft.	37	29	31

It is considered that practically no damage was suffered by any crop, but that the ripening of fruit trees and nuts has been delayed somewhat, up to a maximum of about a month in some cases.

At Nicosia the mean minimum temperature for December was 45°.19F. equal to the average for the previous 20 years : that for January 29°.57, 2°.31 lower than average : that for February 39°.57, 2°.55 lower than the average.

There was a fall of about 1 $^3/_4$ inches of snow on January 22 at Nicosia. Snow falls here about once in 4 years.

There was also rather more snow than usual at greater altitudes.

Spain (Albacete) (2). — In this region the cold of the winter of 1928-29 was not felt with the exceptional severity that was registered in other countries and also in other parts of Spain. In fact the lowest temperature registered was —11° in January, while in former years temperatures of —14° and —15° were registered. Low winter temperatures do not however noticeably injure the crops in this region, as in their case the season corresponds with the period of vegetative repose ; on the other hand damage from late spring frosts is much more frequent.

Guadeloupe (3). — Our Colony being a small island constantly swept by sea breezes, enjoys a mild climate in spite of its tropical situation. We have in no way felt the rigours of the winter of 1928-29. The seasons are not distributed as in many countries, and winter is represented by a cool and relatively dry season. From October 1928 to February 1929 the extreme temperatures registered here were 32°.5 and 17°. They correspond to averages hitherto recorded.

Holland (4). — The minimum temperatures registered in the different parts of Holland, during February 1929 are the folllowing :—

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(1) Communication from the official correspondent to the Institute, Mr H. M. Morris, M. Sc., F. E. S., Government Entomologist, Nicosia, Cyprus.

(2) Communication from the official correspondent to the Institute, Sr. Ramón Garrido y Domingo, Chief of the Agronomic Service, Albacete.

(3) Communication from the official correspondent to the Institute, Mr. A. Buffon, Head of the Service of Agriculture at Basse-Terre.

(4) Communication from the State Plant Protection Service at Wageningen, official correspondent of the Institute.

Observation Station	Day	Minimum temperature
Den Helder	4 February	— 9° C.
»	15 »	— 16° »
»	21 »	— 11° »
Akkrum	10 »	— 12° »
»	14 »	— 19° »
»	21 »	— 14° »
Groningen	3 »	— 11° »
»	11 »	— 19° »
»	21 »	— 13° »
Hoorn	9 »	— 9° »
»	14 »	— 18° »
»	28 »	— 13° »
Wijster	10 »	— 13° »
»	15 »	— 19° »
»	28 »	— 14° »
Naaldwijk	4 »	— 8° »
»	12 »	— 16° »
»	21 »	— 12° »
De Bilt	10 »	— 12° »
»	14 »	— 19° »
»	21 »	— 14° »
Winterswijk	4 »	— 12° »
»	14 »	— 22° »
»	28 »	— 15° »
Vlissingen	4 »	— 6° »
»	12 »	— 16° »
»	28 »	— 9° »
Oudenbosch	4 »	— 10° »
»	14 »	— 17° »
»	21 »	— 12° »
Gemert	4 »	— 10° »
»	14 »	— 21° »
»	28 »	— 13° »
Maastricht	3 »	— 8° »
»	14 »	— 20° »
»	21 »	— 13° »

As regards wheat, only a few fields of 'Mansholt Witte Dikkop III', 'Standaard' and possibly also of 'Jacob Cats' have resisted the action of the cold at Groningen and in Friesland. In Zeeland and in the western part of Northern Brabant, where the fields were covered with snow, the damage done by the cold was least. In the other parts of Holland losses ranged, for wheat, from 15 to 20 % and for barley, 20-30 %.

Experience points to the damage being greater on lands where there is no snow and no weed cover, also to its being more severe on sandy than on clay soils.

A number of pear trees grafted on quince are dead, the cold having killed the stock.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany (1). — By the Order of 27 May 1929 (*Reichsgesetzblatt*, 1929, Teil I, Nr. 22, S. 110) the import and export of live Musquashs (*Fiber zibethicus*) is prohibited till further notice.

Chile. — With the view of preventing the introduction into the Republic of the grape phylloxera [*Phylloxera vastatrix*] by Decree No. 2,921 of 27 May 1929 the importation of vine stocks from any country has been prohibited. Permission may however be obtained — if conditions, to be later established by the Services of Viticulture and Enology and of ' Policía Sanitaria Vegetal ', are observed — for the importation of stocks of varieties resistent to grape phylloxera.

The Customs offices will excercise a special supervision to avoid the importation of plants coming from countries infested by grape phylloxera, and will extend such supervision to the whole cargo. (*Diario oficial de la República de Chile*, Santiago, 11 de junio de 1929, año LII, núm. 15,394, pág. 3122).

*** The Decree No. 3,055 of 5 June 1929 prohibits the import of fruit coming from Florida (U.S.A.) in view of the Mediterranean fruit fly (' mosca de la fruta ' [*Ceratitis capitata*]). (*Ibid.*, 19 de junio de 1929, núm. 15,401, pág. 3300).

Spain. — The ' Real orden ' No. 684 of 6 March 1929 — concerning various agricultural produce the importation and exportation of which is subject, from the following 1st April, to the Phytopathological tax to be collected by the Customs — provides, *inter alia*, as follows :—

(*a*) the prohibition against the importation of plants, trees, etc. accompanied by vegetable earth, garden mould or mature manure remains in force ;

(*b*) the provisions adopted against the introduction of the ' sarna negra ' or ' verrugosa ' of the potato [wart disease, *Synchytrium endobioticum*] remain in force ;

(*c*) there is a general prohibition of the importation of vegetable earth, garden mould, mature or fresh manure ; even if accompanied by other products, as well as of the importation of bulbs, tubers, roots, vegetables and fruits which have particles of earth or garden mould adhering and which have not been washed. (*Gaceta de Madrid*, Madrid, 12 marzo 1929, año CCLXVIII, tomo I, núm. 71, págs. 1873 y 1874).

*** The regulations for the application of Art. 12 of the Royal Decre-Law of 11 October 1926 — approved by the ' Dirección General de Agricultura ' on 11 May 1928 and published on 1 June 1929 — enact *inter alia*, that the ' Estación Sericícola ' is to undertake the inspection of private nurseries of mulberry trees, and if there is no such station in the province then the corresponding Agricultural Section (' Sección Agronómica ') should carry out the inspection under the Regional Station. The inspection shall take into consideration general conditions of growth and also the sanitary condition of the plants, the presence of contagious diseases and of pests likely to spread. The circulation of diseased mulberry plants

(1) Communication from the Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, official correspondent of the Institute.

is prohibited. Railway stations are forbidden to accept mulberry plants not accompanied by the sanitary certificate and certificate of general fitness, given by the Sericultural Station or by the Agricultural Section. If the plants in the nursery show on inspection satisfactory conditions as to health and growth they are judged fit and may be lifted and transplanted when convenient ; if on the other hand they are found to be attacked by contagious diseases the proper treatment will immediately be applied, and the export of the plants will be prohibited so long as they are shown to be diseased. When the time for transplanting comes, the nurserymen will apply to the Sericultural Station for the certificate stating that the nurseries are fulfilling the required conditions for the lifting of the plants and their circulation. Every nursery must receive the certificate indicating the sanitary and vegetative conditions, as well as the approximate number, of mulberry plants. The seed bed plants will also undergo inspection as regards the same conditions. Nurserymen lifting and placing on the market plants from nurseries or seedbeds which are either diseased or not properly developed will be liable to fines and penalties. (*Gaceta de Madrid*, Madrid, 1 junio 1929, año CCLXVIII, tomo II, núm. 152, pág. 1312).

France. — The following information has been given by the Ministry of Agriculture to cherry growers and exporters sending consignments to the Netherlands :—

By reason of the Netherlands phyto-sanitary regulation, parcels containing cherries intended for the Netherlands will be despatched from the Paris-Nord station, where they will be examined by the agents of the " Service de la défense des végétaux et de l'inspection phytopathologique ".

These agents, after having ascertained that the conditions prescribed by the Netherlands Government have been observed, will deliver, if necessary, a certificate stating that the examination of the cherries has not revealed the presence of the larvae of the cherry fruit fly (' ver des cerises ', *Rhagoletis cerasi*) and that they come from a locality not invaded by that insect.

These certificates are inssued only to :—

(1) exporters inscribed at the phytopathological control in accordance with article 12 of the Decree of 30 September 1927. Their consignments will only by examined by the Service in consideration of the previous despatch of a consignment notice addressed by the exporter to the Head of the Inspection Office at the Paris-Nord Station ;

(2) or exporters affiliated to a professional group of producers and exporters whose statutes have been previously accepted by the Minister of Agriculture. The parcels despatched by these exporters must bear the association label required by the regulation of the group, as well as the label affixed by the despatching station ; they will only be examined by the Service on presentation of the consignment notice addressed by the exporter to the representative at the Paris-Nord station of the group to which he belongs.

Parcels found infested with the larvae of the cherry fruit fly will, if necessary, have the association label removed and will be sent back immediately to the destination indicated by the exporter himself or by his representatives. (*Journal officiel de la République Française*, Paris, 11 juin 1929, I.XI[ème] année, nº 135, p. 6425-6426).

Italy. — By Ministerial Decrees of 30 June 1929, the Communes of Castel San Lorenzo and of Salvitelle, in the province of Salerno, have been declared infested with grape phylloxera [*Phylloxera vastatrix*]. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 1º agosto 1929, anno 70º, n. 178, p. 3605).

*** The presence of the grape phylloxera [*Phylloxera vastatrix*] is reported in the following communes of the province of Campobasso which are accordingly declared to be infested with this pest :— Frosolone, Bagnoli del Trigno, Torella del Sannio, Castellino del Biferno, San Giuliano del Sannio, Castropignano, Casalciprano, Cercepiccola. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 19 agosto 1929, anno 70°, n. 192, p. 3862).

*** By virtue of the Ministerial Decree of 1 July 1929 the Royal Phytopathological Observatories (' RR. Osservatorî di Fitopatologia ') which by art. 23 of the Law No. 94 3 January 1929 (see this *Bulletin*, 1929, No. 2, p. 27) are instituted for the districts and at the headquarters shown below :—

(1) Royal Phytopathological Observatory for Venezia Giulia. — Headquarters :— Trieste via San Nicolò, 7. Territorial limits :— Provinces of Fiume, Gorizia, Pola, Trieste, Udine.

(2) Royal Phytopathological Observatory for the Veneto and Venezia Tridentina. — Headquarters :— Verona, via Mameli, 3. Territorial limits :— Provinces of Belluno, Bolzano, Padova, Rovigo, Trento, Treviso, Venezia, Verona, Vicenza.

(3) Royal Phytopathological Observatory of Milan. — Headquarters :— at the R. Istituto superiore agrario, Milan. Territorial limits :— Provinces of Bergamo, Brescia, Como, Mantova, Milano, Sondrio, Varese.

(4) Royal Phytopathological Observatory of Pavia. — Headquarters :— at the R. Laboratorio Crittogamico, Pavia. Territorial limits :— Provinces of Cremona, Pavia, Piacenza.

(5) Royal Phytopathological Observatory of Turin. — Headquarters :— Turin, via Saluzzo, 24 bis. Territorial limits : — Provinces of Alessandria, Aosta, Cuneo, Novara, Torino, Vercelli.

(6) Royal Phytopathological Observatory of Chiavari. — Headquarters :— Chiavari, Corso Italia, 11. Territorial limits :— Provinces of Genova, Imperia, La Spezia, Savona.

(7) Royal Phytopathological Observatory of Bologna. — Headquarters :— at the R. Istituto superiore agrario, Bologna. Territorial limits :— Provinces of Bologna, Ferrara, Forlì, Ravenna.

(8) Royal Phytopathological Observatory of Modena. — Headquarters :— at the R. Stazione agraria sperimentale, Modena. Territorial limits : — Provinces of Modena, Reggia Emilia.

(9) Royal Phytopathological Observatory of Fano. — Headquarters :— Fano. Territorial limits : — Provinces of Ancona, Ascoli Piceno, Macerata, Pesaro, Urbino.

(10) Royal Phytopathological Observatory of Florence. — Headquarters (Section of Agricultural Entomology :— at the R. Stazione di Entomologia agraria, Florence ; Section of Plant Pathology :— at the R. Istituto superiore agrario e forestale, Florence). Territorial limits :— Provinces of Arezzo, Firenze, Lucca, Massa-Carrara, Pistoia, Siena.

(11) Royal Phytopathological Observatory of Pisa. — Headquarters :— at the R. Istituto superiore agrario, Pisa. Territorial limits :— Provinces of Grosseto, Livorno, Pisa.

(12) Royal Phytopathological Observatory of Perugia. — Headquarters :— at the R. Istituto superiore agrario, Perugia. Territorial limits : — Province of Perugia.

(13) Royal Phytopathological Observatory of Rome. — Headquarters :— at the R. Stazione di Patologia vegetale, Rome, via Santa Susanna, 13. Territorial limits :— Provinces of Aquila, Chieti, Frosinone, Pescara, Rieti, Roma, Teramo, Terni, Viterbo.

(14) Royal Phytopathological Observatory of Portici. — Headquarters :— at the R. Istituto superiore agrario, Portici. Territorial limits : — Provinces of Matera, Napoli, Potenza, Salerno.

(15) Royal Phytopathological Observatory of Avellino. — Headquarters :— at the R. Scuola agraria specializzata per la Viticoltura e l'Enologia, Avellino. Territorial limits :— Provinces of Avellino, Benevento, Campobasso.

(16) Royal Phytopathological Observatory of Taranto. — Headquarters:— Taranto, Piazza Ebalia, 1. Territorial limits :— Provinces of Bari, Brindisi, Foggia, Lecce, Taranto.

(17) Royal Phytopathological Observatory of Reggio Calabria. — Headquarters :— at the Cattedra Ambulante d'Agricoltura, Reggio Calabria. Territorial limits :— Provinces of Catanzaro, Cosenza, Reggio Calabria.

(18) Royal Phytopathological Observatory of Acireale. — Headquarters :— at the R. Stazione di Agrumicoltura e Frutticoltura, Acireale. Territorial limits :— Provinces of Catania (except the territory of the ex-circondario of Catania), Caltanissetta, Enna, Messina, Ragusa, Syracuse.

(19) Royal Phytopathological Observatory of Catania. — Headquarters :— at the R. Scuola agraria media specializzata per la Viticoltura e l'Enologia, Catania. Territorial limits :— Territory of the ex-circondario of Catania.

(20) Royal Phytopathological Observatory of Palermo. — Headquarters :— at the R. Orto botanico coloniale, Palermo. Territorial limits :— Provinces of Agrigento, Palermo, Trapani.

(21) Royal Phytopathological Observatory of Cagliari. — Headquarters : — at the R. Vivaio di viti americane, Cagliari. Territorial limits :— Provinces of Cagliari, Nuoro, Sassari. (*Gazzetta ufficiale del Regno d'Italia*, Roma, 1° agosto 1929, anno 70°, n. 178, p. 3597).

Mexico. — By the ' acuerdo ' of 11 April 1929 it is provided that for the certificate of analysis and inspection of insecticides and fungicides, to be released by the chief of the ' Oficina Federal para la Defensa Agrícola ', a tax of 10 pesos is payable. (*Diario Oficial*, México, 29 de abril de 1929, tomo I,III, núm. 47, pág. 2).

Porto Rico. — The " Comisionado de Agricultura y Trabajo ", with a view to preventing the introduction into the island of citrus canker (' cancro del Citrus ' [*Bacterium Citri*]) and of the Mediterranean fruit fly (' mosca de la fruta del Mediterráneo ', *Ceratitis capitata*), as well as of diseases and pests so far unknown in Porto Rico, has forbidden the import, not only of seeds, eyes, slips or fruits of any kind coming from the States of Florida, Alabama, Mississippi, Louisiana, Texas, California, Arizona and Georgia, but also of all kinds of fresh vegetables, including tomatoes, chillies, aubergines, beans, celery, cucumbers, melons, water melons, papaws, gourds, spinach and any other fresh vegetable or fruit whether intended for consumption or for experimental purposes, which may serve as vehicles or hosts for diseases or the pests indicated above. (*Revista de Agricultura de Puerto Rico*, Publicación oficial del Departamento de Agricultura y Trabajo, San Juan, P. R., abril 1929, año XII, vol. XXII, no. X, pág. 170).

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[*Agrotis* spp.].

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[Enumeration of 31 species and varieties of which the following are new to science :— *Aspidiotus brachystegiae* on *Brachystegia flagristipulata* ; *A. combreti* on *Combretum* spp. ; *A.* (*Hemiberlesea*) *rhodesiensis* on *Brachystegia* spp., *Berlinia globiflora* and *Parinarium Mobola* ; *Lepidosaphes brachystegiae* on *Berl. globiflora* and *Brachystegia* spp. ; *Diaspis carissae* on *Carissa edulis* var. *tomentosa* ; *Howardia loranthi* on *Loranthus* spp. ; *How. rhusae* on *Rhus* spp. ; *Chionaspis sinoiae* on an unknown plant ; *Ch.* (*Pinnaspis*) *combreti* on *Combretum* sp. ; *Ch.* (*Pinn.*) *communis* on *Ficus* spp. and *Zizyphus Jujuba* ; *Ch.* (*Pinn.*) *communis* var. *berliniae* on *Berl. globifera* ; *Ch.* (*Pinn.*) *communis* var. *monotes* on *Monotes glaber* ; *Ch.* (*Pinn.*) *indigoferae* on *Indigofera* sp. ; *Ch.* (*Dinaspis*) *mashonae* on *Uapaca nitida* ; *Ch.* (*Din.*) *proteae* on *Faurea saligna* and *Protea* spp. ; *Ch.* (*Din.*) *reticulata* on *Capparis corymbifera* ; *Ch.* (*Din.*) *uapacae* on *Uapaca Kirkiana*. Descriptions are given in English of the new species and varieties].

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[*Pteronus ribesii* Scop., *Pristiphora pallipes* Lep.].

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[*Oospora Scabies*, *Actinomyces* spp., *Micrococcus pellucidus*].

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[*Marasmius perniciosus*].

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[*Cephalosporium* sp., *Plectosphaerella Cucumeris*].

KLEINWÄCHTER, HERMANN. Cyanogasschäden. *Der Blumen- und Pflanzenbau*, Berlin 1929, 44. Jahrg., Heft 7, S. 128-129.

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KÖNIG, F. Gallen an der Luzerne. *Deutsche Landwirtschaftliche Presse*, Berlin 1929, 56. Jahrg., Nr. 2, S. 21, Abb. 31-32.

[*Jaapiella medicaginis* = *Contarinia medicaginis*, *Cecidomyia loti*].

KOPETZKY, EUGEN. Das Bundgesetz über den Pflanzenschutz. *Wiener Landwirtschaftliche Zeitung*, Wien 1929, 79. Jahrg., Nr. 26, S. 263-264.

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[*Phytophthora infestans*].

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[This phenolic acid appears to be one of a group of toxic substances that enables the pigmented onions to resist the attacks of *Colletotrichum circinans*].

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MALENOTTI, E. Contro le larve delle Agrotidi. *Il Coltivatore*, Casale Monferrato, 1929, anno 75, n. 10, pp. 343-344.

[*Agrotis segetum*, etc.].

MARINA, GERMAN. Noticia sobre una plaga de hormigas blancas en la provincia de Zamora. *Revista de Fitopatología*, Madrid, 1928, años IV-V-VI, 1926 a 1928, núm. 6, págs. 28 y 29, láms. X a XII.

[*Leucotermes lucifugus* Rossi].

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[*Eriophyes löwi* Nal., *Phyllocoptes massalongoi* Nal.].

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[As far as appears, the larva of *R. dimidiata* is noted for the first time as a parasite of the adult form of *C. mendicus* which is a pest on sugar beet in the neighbourhood of Rieti and in the province of Livorno].

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[*Pythium mamillatum* n. sp.: the diagnosis is given in German of this new species, discovered in Holland].

MOLA, ALEJANDRO. Estudios y observaciones que se hacen actualmente sobre algunas plagas que atacan a montes poblados con especies resinosas, en la 2ª Estación Regional de Fitopatología Forestal (Valencia). *Revista de Fitopatología*, Madrid, 1928, años IV-V-VI, 1926 a 1928, núm. 6, págs 33 a 37.

[*Bacillus Pini* L., *Peridermium Pini corticola* Willd., *Phycis* Zk. (*Dioryctria* Zll., *Tinea* Ratzb.), *Pissodes notatus* Fabr., on *Pinus halepensis*; *Lymantria* (*Liparis*) *monacha* L., *Phaenops cyanea* Fabr., on *P. sylvestris*; *Evetria* (*Tortrix*) *buoliana* Schiff., *Hylesinus piniperda* Gyll., on *P. halepensis*].

MUGGERIDGE, J. Biological control of pear-midge (*Perrisia pyri*) in New Zealand. The present position. *The New Zealand Journal of Agriculture*, Wellington, 1929, Vol. XXXVIII, No. 5, pp. 317-320, fig 1.

[The control of *P. pyri* by means of its parasite *Misocyclops marchali* Kieff. has not given the results hoped for. Plans are being made for the introduction into New Zealand of other parasites of *P. pyri*].

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[*Physalospora Miyabeana*].

NAVARRO DE ANDRADE, ED. Praga dos bambús. Rhinastus sternicornis (Germ.). *Archivos do Instituto Biologico de Defesa Agricola e Animal*, São Paulo-Brasil, 1928, vol. 1, pags. 137-142, ests. 22-23.

[In Portuguese, with summary in English. *Rhin. stericornis* has been recognised in the State of São Paulo as injurious to *Bambusa vulgaris*, *Bamb. arundinacea*, *Phyllostachys Castillonis*, *Chusquea* sp., *Arundinaria* sp., *Merostachys* sp.].

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[In Czech, with title and summary also in French].

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[*Rubus fruticosus*].

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OSORIO-REBELLÓN, ALFONSO. Una enfermedad de roya en los chopos. *Revista de Fitopatología*, Madrid, 1928, años IV-V-VI, 1926 a 1928, núm. 6, págs. 50 a 52.
[*Melampsora Allii-populina* Kleb. on *Populus canadensis* L.].

OWENS, CHARLES ELMER. Principles of plant pathology. New York, John Wiley and Sons, Inc., 1928, pp. XII+629, 222 figs.
[Each chapter of the volume is accompanied by bibliographical notes].

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[In Portuguese, with summary in English. Disease of *Solanum tuberosum* observed in the State of São Paulo and produced by a bacterium akin to *Erwinia Melonis* and to *Erw. solanisapra*, more especially to the latter].

PAGDEN, H. T. Leptoglossus membranaceus F., a pest of Cucurbitaceae. *The Malayan Agricultural Journal*, Kuala Lumpur, 1928, Vol. XVI, No. 12, pp. 387-403, pls. I-II. Bibliography, pp. 402-403.

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PASSALACQUA, TITO. Una Batteriacea parassita delle *Aloë* nei giardini di Palermo: *Bacterium Aloës*. *Rivista di Patologia vegetale*, Pavia, 1929, anno XIX, n. 5-6, pp. 105-110.
[On *A. plicatilis*].

PETRI, L. Alterazione del fusto dei papiri prodotta da protozoi. *Rendiconti delle sedute della Reale Accademia Nazionale dei Lincei*, Classe di Scienze fisiche, matematiche e naturali, Roma, 1929, vol. IX, fasc. 9, pp. 701-702.
[The Protozoon here mentioned is presumably to be referred to the genus *Leptomonas* or *Crithidia*; on *Cyperus Papyrus* at Syracuse].

PETRI, L. Pathologische Wirkungen der Uranstrahlen auf Olea europaea. *Phytopathologische Zeitschrift*, Berlin 1929, Bd. I, Heft 1, S. 45-48, Abb. 1-2.

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RECKENDORFER, PAUL, und BERAN, FERDINAND. Der Arsengehalt von Schweinfurtergrün-Kalkbrühen. *Wein und Rebe*, Mainz 1929, 10. Jahrg., Nr. 12, S. 581-585.

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RIESGO ORDÓÑEZ, ANGEL. La fauna del Valle de los Padroches. *Revista de Fitopatología*, Madrid, 1928, años IV-V-VI, 1926 a 1928, núm. 6, págs. 53 a 58.

[*Lymantria dispar* L., *Tortrix viridana* L., *Malacosoma neustria* L., *Polydrosus nanus* Db., *Coroebus fasciatus* Well., *Cerambyx heros* L., *Cetonia aurata* L., *C. morio* L., *C. floricola* Herb., *Apate sexdentatus* Oliv., *Balaninus elephas* Gyll., as well as various other insects, parasites or predators of *L. dispar*, *T. viridana* and *M. neustria*].

RIVERA, VINCENZO, e CORNELI, ENRICO. Ricerche sullo sviluppo delle ruggini sul frumento in agro di Perugia. *Annali di Tecnica Agraria*, Portici, 1929, anno I e II, fasc. V, pp. 545-588, tav. III-V.

SALT, GEORGE. A study of *Colaspis hypochlora*, Lefèvre. *Bulletin of Entomological Research*, London, 1928, Vol. XIX, Pt. 3, pp. 295-308, fig. 1.

[A Coleopteron injurious to bananas in Colombia].

SAMPSON, KATHLEEN. The biology of oat smuts. II. Varietal resistance. *The Annals of Applied Biology*, London, 1929, Vol. XVI, No. 1, pp. 65-85, fig. 1, pl. IX.

[*Ustilago Avenae*, *U. levis*].

SANFORD, G. B., and BROADFOOT, W. C. Stripe rust in Alberta. *Scientific Agriculture*, Ottawa, Canada, 1929, Vol. IX, No. 6, pp. 337-345, figs. 1-2.

[*Puccinia glumarum* (Schm.) Erikss. et Henn.].

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[*Neopeckia Coulteri* (Peck) Sacc.].

SCHAFFNIT, E. Auftreten der Braunfleckigkeit das Hafers. (Helminthosporium avenae). *Deutsche Landwirtschaftliche Presse*, Berlin 1929, 56. Jahrg., Nr. 24, S. 353.

SCHLUMBERGER. Saatenanerkennung und Pflanzenkrankheiten im Jahre 1928. *Nachrichtenblatt für den Deutschen Pflanzenschutzdienst*, Berlin 1929, 9. Jahrg, Nr. 7, S. 59-60.

SCHNEEBERG, A. Orthoptera in der Forstwirtschaft. *Lesnická Práce*, Písku 1929, ročn. VIII, číslo 5, str. 260-278, 17 obr. Použitá literatura, str. 276-277.

[In Czech, with title and summary also in German. The A. treats of *Isophia cantoxipha* Fiebr., *Barbitistes constrictus* Br., *B. serricauda* Fabr., *Leptophyes punctatissima* Bosc., *Meconema varium* F., *Locusta viridissima* L., *L. caudata* Charp., *L. cantans* Fuessly, *Decticus verrucivorus* L., *Ephippigera vitium* Serv., *Gryllotalpa vulgaris* Latr., *Acheta campestris* L., *Psophus stridulus* Fieb., *Oedipoda coerulescens* L., *Pachytylus migratorius* L., *Stethophyma fuscum* Pall., *Stauroderus biguttulus* L., *Chorthippus elegans* Chapr., *Ch. parallelus* Zett., *Myrmeleotettix maculatus* Thunb., *Podisma schmidti* Fieb., *P. alpinum* Kool., *P. alpinum* var. *collinum* Brunn., *Caloptenus italicus* L., *Acridium aegyptium* L., *Tettix kraussi* Sauley, *T. bipunctatus* L., *T. subulatus* L.].

SIBILIA, CESARE. Sulla nuova legge per la difesa delle piante coltivate e dei prodotti agrari dalle cause nemiche e sui relativi servizi. *La Nuova Agricoltura*, Roma, 1929, anno II, n. 1, pp. 938-944.

[The Italian Law No. 94 of 3 January 1929. For text see this *Bulletin*, 1929, No. 2].

SIEMASZKO, W. Phytopathologische Beobachtungen in Polen. *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, Zweite Abteilung, Jena 1929, 78. Bd., Nr. 1/7, S. 113-116. Literatur, S. 116.

[Observations in regard to years 1923-1928. *Inter alia*, the German diagnosis is given of *Peronospora Ducometi* Siemaszko et Jankowska n. sp., on *Fagopyrum sagittatum* Gilib.].

SMITH, KENNETH M. Studies on potato virus disease. IV. Further experiment with potato mosaic. *The Annals of Applied Biology*, London, 1929, Vol. XVI, No. 1, pp. 1-33, pls. I-V.

SNYDER, T. E. Comejenes u hormigas blancas. Los estragos que este insecto ocasiona y manera de combatirlo, singularmente en los huertos y sembrados del gran cultivo. *La Hacienda*, Nueva York, 1929, año XXIV, núm. IV, págs. 154 a 160, figs. 1 a 6.

[Comejenes = Termites].

SOUTHERN, B. L., and LIMBOURN, E. J. Copper powders for the prevention of bunt in wheat. *Journal of the Department of Agriculture of Western Australia*, Perth, 1929, Vol. 6 (Second Series), No. 1, pp. 162-165.

[*Tilletia levis*].

STACCHINI, PAOLO. A proposito delle gelate nella Costa d'Azzurro. *La Terra*, Bologna, 1929, anno V, n. 6, pp. 395-397.

STORCK, A. Die Beziehungen der Gelbsucht (Chlorose) bei Prim. obconica zu Zusammensetzung, Alter und Reaktion der Kulturerde. *Der Blumen- und Pflanzenbau*, Berlin 1929, 44. Jahrg., Heft 7, S. 129-131.

STUMMER, ALBERT. Schutz der Weingärten gegen Frühjahrsfröste. *Wein und Rebe*, Mainz 1929, 10. Jahrg., Nr. 12, S. 539-549, Abb. 1-11.

TAMARO, D. Note di Frutticoltura. Come gli olivi colpiti dal gelo invernale riprendono la vegetazione. *Il Coltivatore*, Casale Monferrato, 1929, anno 75, n. 19, pp. 6-9, fig. 1.

TEHON, L. R., and STOUT, G. L. Notes on the parasitic fungi of Illinois — IV. *Mycologia*, Lancaster, Pa., 1929, Vol. XXI, No. 4, pp. 180-196, pl. 13.

[The diagnoses are given in English of *Stigmatophragmia sassafrasicola* n. gen. et n. sp. on *Sassafras varifolium*; *Melanospora interna* n. sp. on *Lycopersicon esculentum*; *Metasphaeria Asparagi* n. sp. on *Asparagus officinalis*; *M. sassafrasicola* n. sp. on *S. variifolium*; *Pleospora Oleraceae* n. sp. on *Brassica oleracea*; *Phyllosticta Rugelii* n. sp. on *Plantago Rugelii*; *Phyll. podophyllina* n. sp. on *Podophyllum peltatum*; *Phyll. allegheniensis* n. sp. on *Rubus allegheniensis*; *Phyll. subeffusa* (Ellis et Ev.) Tehon et Stout comb. nov., descr. emend. on *Smilax hispida*; *Phoma asparagina* n. sp. on *Asparagus officinalis*; *Macrophoma Smilacinae* n. sp. on *Smilacina stellata*; *M. Cercis* n. sp. on *Cercis canadensis*; *M. Phlei* on *Phleum pratense*; *Exophoma astericola* n. sp. on *Aster tardiflorus*; *Cyphellopycnis Pastinacae* n. gen. et n. sp. on *Pastinaca sativa*; *Diplodia acericola* n. sp. on *Acer saccharum*; *Cryptostictis inaequalis* n. sp. on *Vitis rotundifolia*; *Septoria Tecomaxochitl* n. sp. on *Tecoma radicans*; *Pseudodictya sassafrasicola* n. gen. et n. sp. on *Sassafras variifolium*; *Leptothyriella Liquidambaris* n. sp. on *Liquidambar styraciflua*; *Diplopeltis sassafrasicola* n. sp. on *Sass. variifolium*.

The enumeration follows of various species noted for the first time in Illinois or for the first time after the finding of them there between the years 1880 and 1890].

UNAMUNO, LUIS M. Nuevos datos para el estudio de los hongos parásitos y saprofitos de los alrededores de Durango (Vizcaya). *Boletín de la Real Sociedad Espa-*

ñola de Historia Natural, Madrid, 1929, tomo XXIX, núm. 5, págs. 113 a 125, figs 1 a 4.

[Enumeration of 74 species some of which are new to science or to the Spanish flora. In particular note: *Phyllosticta Trifolii-minoris* n. sp. on *Trifolium minor*, *Septoria Eusebiana* n. sp. on *Solidago virga-aurea*, *Monochaetia Rosae-caninae* n. sp. on *Rosa canina*. The Latin diagnoses are given of the new species].

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VERWOERD, LEN. On two cases of recovery from a mosaic disease of tomato plants, *Lycopersicum esculentum*. *The Annals of Applied Biology*, London, 1929, Vol. XVI, No. 1, pp. 34-39.

VIVOLI, GIULIO. Gli anticrittogamici contro la carie ed il carbone dei cereali dal punto di vista della loro influenza sul potere germinativo delle cariossidi. *Annali di Tecnica Agraria*, Portici, 1929, anno I e II, fasc. V, pp. 614-630.

VOGLINO, PIERO. Il servizio di controllo fitopatologico sulla castagne destinate agli Stati Uniti d'America nella campagna 1928, esercitato dal R. Osservatorio di Fitopatologia di Torino. Relazione a S. E. il Ministro dell'Economia Nazionale. *Nuovi Annali dell'Agricoltura*, Roma, 1929, anno VIII, n. 3-4 (1928), pp. 319-344.

WATERSTON, JAMES. A new Encyrtid (Hym., Chalcid.) bred from *Clastoptera* (Hom., Cercop.). *Bulletin of Entomological Research*, London, 1928, Vol. XIX, Pt. 3, pp. 249-251, fig. 1.

[The description is given in English of *Carabunia myersi* n. gen. et n. sp. bred from a nymph of *Clastoptera* sp. at Cuba. It has been proposed to introduce *C. myersi* into Trinidad in the hope of thereby establishing a control of *Tomaspis saccharina*].

WIESSELL, K. Trockenbeizanlage. *Deutsche Landwirtschaftliche Presse*, Berlin 1929, 56. Jahrg., Nr. 5, S. 68, Abb. 92-95.

WILLE, F. Puffergrösse und Befall von Pflanzenkrankheiten. *Zentralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten*, Zweite Abteilung, Jena 1929, 78. Bd., Nr. 8/15, S. 244-245.

WILLE, JOHANNES. Die Rübenblattwanze, Piesma quadrata Fieb. (Monographien zum Pflanzenschutz. Herausgegeben von Professor Dr. H. Morstatt, Berlin-Dahlem. 2). Berlin, Verlag von Julius Springer, 1929, 116 S., 39 Abb. Literatur, S. 114-116.

[The Author studies this insect from the point of view of classification, of its host plants, cultivated or wild, its geographical distribution, its morphology and biology, in turn; then he deals with the damage done by it and the means of control].

WILKINSON, D. A. New parasitic Hymenoptera. *Bulletin of Entomological Research*, London, 1928, Vol. XIX, Pt. 3, pp. 261-265, figs. 1-2.

[Description in English of *Henicospilus euxoae* n. sp., bred from *Euxoa segetum* Schiff. (Southern Rhodesia); *Fornicia ceylonica* n. sp., bred from *Natada nararia* Moore and *Spatulifimbria castaneiceps* Hmps. (Ceylon); *Apantheles fabiae* n. sp., bred from *Fabia* sp. (India); *Amicroplus tasmanicus* n. sp., parasite of *Agrotis* sp. or of a Noctuid akin to the former (Tasmania)].

ZANOBINI, FRANCESCO. Un grande nemico della barbabietola da zucchero: il « Cleonus mendicus ». *Il Lavoro Agricolo Fascista*, Roma, 1929, anno II, n. 30, p. 3, 5 figg.

NOTES

Resolutions of the International Congress on Equipment for Control of Crop Pests. — This Congress organised at Lyons on 24 July 1929 by the P.-L.-M. Company passed the following resolutions :—

The Congress, considering that it is a matter of urgency to take measures for the general diffusion of insecticide and fungicide treatment of fruit trees, resolves :—

(1) that steps be taken for a comparative study of the different methods proposed and that a general programme of treatments to be advised be drawn up with the co-operation of the experts of the ' Institut des Recherches Agricoles ' ; (2) that precise official instructions be given to all organisations which especially undertake propaganda for methods of treatment, with a view to achieving unity of action in this respect ; (3) that this propaganda policy be intensified in all fruitgrowing countries by the organisation of lectures and demonstrations, publication of leaflets and placards, and in general, by all administrative measures tending to promote systematic methods of treatment of fruit trees ; (4) that the International Institute of Agriculture at Rome be invited, in particular, to give in its official publications and especially in its *International Bulletin of Plant Protection*, the fullest possible publicity on the methods of treatment, so that farmers may benefit by all trials and all results obtained in the different countries ; (5) that an enquiry be undertaken with a view to the regulation of sales for consumption of fruits damaged by parasites.

The Congress :—

(1) recognises the necessity of a scientific organisation :— (*a*) of a comparative study of antiparasitic products with a view to the reduction to a strict minimum of the number of formulae to be advised ; (*b*) enquiries into the existing apparatus for antiparasitic powders or liquids, with a view to the reduction to a strict minimum of the number of standard types to be advised in each agricultural region ; (2) notes the recent progress achieved in France in this respect as well as the need, for the treatment of fruit-trees, of a further development in the use of apparatus with a pressure regularly attaining a minimum of 6 kgs., the jets to be variable in form and the amount sprayed to be capable of regulation ; (3) resolves that within the shortest possible time, all present models are to be tested for their relative agricultural and economic value, *ceteris paribus*, by means of comparative trials held in the different agricultural regions ; (4) resolves that a Joint Advisory Committee be appointed, including research workers, qualified experts and practical farmers, which shall define the conditions of experiment work, control the results obtained, decide on suitable measures for making results known, and make suggestions to manufacturers for improvement of their apparatus.

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